

We claim:

5 1. A process for producing an *Escherichia coli* strain capable of producing between about 95 and about 150 g/L of L-threonine by about 48 hours of growth in culture, said process comprising:

10 (a) inserting into the chromosome of an *E. coli* at least one threonine operon operably linked to a non-native promoter to produce a parent strain; and

15 (b) performing at least one cycle of mutagenesis on the parent strain, followed by screening the mutagenized cells to identify *E. coli* which produce between about 95 and about 150 g/L of L-threonine by about 48 hours of growth in culture.

20 2. The process of claim 1, wherein the *E. coli* strain is capable of producing between about 100 and about 140 g/L of L-threonine by about 48 hours of growth in culture.

25 3. The process of claim 2, wherein the *E. coli* strain is capable of producing between about 110 and about 130 g/L of L-threonine by about 48 hours of growth in culture.

25 4. The process of claim 3, wherein the *E. coli* strain is capable of producing between about 110 and about 120 g/L of L-threonine by about 48 hours of growth in culture.

30 5. The process of claim 1, wherein mutagenesis is performed using an agent selected from the group consisting of:

- (a) an alkylating agent;
- (b) an intercalating agent; and
- (c) ultraviolet light.

6. The process of claim 1, wherein two or three threonine operons are inserted into the chromosome of the *E. coli*.

5 7. The process of claim 6, wherein the individual threonine operons are operably linked to at least two different non-native promoters.

8. The process of claim 1, wherein the non-native promoter is selected from the group consisting of the *tac* promoter, the *lac* promoter, the *trp* promoter, the *lpp* promoter, the P_L promoter and the P_R promoter.

10

9. The process according to claim 8, wherein the non-native promoter is the *tac* promoter.

15

10. The process of claim 1, wherein the threonine operon contains a gene that encodes a feedback-resistant aspartate kinase-homoserine dehydrogenase.

11. The process according to claim 1, wherein the *E. coli* strain contains a defective threonine dehydrogenase gene on the chromosome.

20

12. The process of claim 1, wherein the threonine operon is obtained from the strain deposited as ATCC Deposit No. 21277.

25

13. The process of claim 1, wherein the mutagenized cells are screened to identify *E. coli* which are resistant to threonine raffinate.

14. The process of claim 1, wherein the mutagenized cells are screened to identify *E. coli* which are resistant to borrelidin.

15. The process of claim 1, wherein the mutagenized cells are screened to identify *E. coli* which are resistant to threonine raffinate and borreloidin.

5 16. The process of claim 1, wherein the *E. coli* strain has the characteristics of the strain deposited as NRRL B-30318.

10 17. The process of claim 1, wherein the *E. coli* strain has the characteristics of the strain deposited as NRRL B-30319.

18. An *E. coli* strain produced by the process of claim 1.

15 19. An *E. coli* strain comprising at least one chromosomally integrated threonine operon operably linked to a non-native promoter,

wherein said *E. coli* strain is capable of producing between about 95 and about 150 g/L of L-threonine by about 48 hours of growth in culture, and

wherein said *E. coli* strain is not strain KY10935, strain ADM TH1.2, or strain ADM Kat13.

20 20. The *E. coli* strain of claim 19 which is capable of producing between about 100 and about 140 g/L of L-threonine by about 48 hours of growth in culture.

25 21. The *E. coli* strain of claim 20 which is capable of producing between about 110 and about 130 g/L of L-threonine by about 48 hours of growth in culture.

30 22. The *E. coli* strain of claim 21 which is capable of producing between about 110 and about 120 g/L of L-threonine by about 48 hours of growth in culture.

23. The *E. coli* strain of claim 19 comprising a threonine operon obtained from the strain deposited as ATCC Deposit No. 21277.

5 24. The *E. coli* strain of claim 19 which is resistant to threonine raffinate.

25. The *E. coli* strain of claim 19 which is resistant to borrelidin.

10 26. The *E. coli* strain of claim 19 which is resistant to threonine raffinate and borrelidin.

27. The *E. coli* strain of claim 19, wherein said strain is selected from the group consisting of:

- 15 (a) the strain deposited as NRRL B-30318; and
(b) the strain deposited as NRRL B-30319.

20 28. A process for producing L-threonine, which comprises the steps of:

- (a) culturing an *E. coli* strain of claim 19 in a culture medium; and
(b) recovering L-threonine from the culture medium.

25 29. The process of claim 28, wherein the *E. coli* strain is capable of producing between about 100 and about 140 g/L of L-threonine by about 48 hours of growth in culture.

30. The process of claim 29, wherein the *E. coli* strain is capable of producing between about 110 and about 130 g/L of L-threonine by about 48 hours of growth in culture.

31. The process of claim 30, wherein the *E. coli* strain is capable of producing between about 110 and about 120 g/L of L-threonine by about 48 hours of growth in culture.

5 32. The process of claim 28, wherein the non-native promoter is selected from the group consisting of the *tac* promoter, the *lac* promoter, the *trp* promoter, the *lpp* promoter, the P_L promoter and the P_R promoter.

10 33. The process according to claim 32, wherein the non-native promoter is the *tac* promoter.

15 34. The process of claim 28, wherein the threonine operon contains a gene that encodes a feedback-resistant aspartate kinase-homoserine dehydrogenase.

35. The process according to claim 28, wherein the *E. coli* strain contains a defective threonine dehydrogenase gene on the chromosome.

20 36. The process of claim 28, wherein the threonine operon is obtained from the strain deposited as ATCC Deposit No. 21277.

37. The process of claim 28, wherein the *E. coli* strain is resistant to threonine raffinate.

25 38. The process of claim 28, wherein the *E. coli* strain is resistant to borreloidin.

39. The process of claim 28, wherein the *E. coli* strain is resistant to threonine raffinate and borreloidin.

40. The process of claim 28, wherein the *E. coli* strain has the characteristics of the *E. coli* strain deposited as NRRL B-30319.

5 41. The process of claim 28, wherein the *E. coli* strain has the characteristics of a strain selected from the group consisting of:

- (a) the strain deposited as NRRL B-30318; and
- (b) the strain deposited as NRRL B-30319.

10 42. The process of claim 28, wherein the *E. coli* strain is a strain selected from the group consisting of:

- (a) the strain deposited as NRRL B-30318; and
- (b) the strain deposited as NRRL B-30319.

15 43. An *E. coli* strain which is resistant to threonine raffinate and is capable of producing between about 95 and about 150 g/L of L-threonine by about 48 hours of growth in culture.

20 44. The *E. coli* strain of claim 43 which is capable of producing between about 100 and about 140 g/L of L-threonine by about 48 hours of growth in culture.

25 45. The *E. coli* strain of claim 44 which is capable of producing between about 110 and about 130 g/L of L-threonine by about 48 hours of growth in culture.

46. The *E. coli* strain of claim 45 which is capable of producing between about 110 and about 120 g/L of L-threonine by about 48 hours of growth in culture.

47. The *E. coli* strain of claim 43, wherein the threonine operon encodes a feedback-resistant aspartate kinase I-homoserine dehydrogenase I gene (*thrA*), a homoserine kinase (*thrB*) gene, and a threonine synthase gene (*thrC*).

5 48. The *E. coli* strain of claim 43, wherein the threonine operon is obtained from the strain deposited as ATCC Deposit No. 21277.

10 49. The *E. coli* strain of claim 43 which contains a defective threonine dehydrogenase gene on the chromosome.

50. The *E. coli* strain of claim 43 which is resistant to borrelidin.

15 51. The *E. coli* strain of claim 43 which has the characteristics of the strain deposited as NRRL B-30319.

52. An *E. coli* strain selected from the group consisting of:
(a) the strain deposited as NRRL B-30316; and
(b) the strain deposited as NRRL B-30317.